STATEMENT FOR THE RECORD

BY

CHERIF RIZKALLA

PRESIDENT OF SMITHS DETECTION, AMERICAS

BEFORE THE SUBCOMMITTEE ON ECONOMIC SECURITY, INFRASTRUCTURE PROTECTION AND CYBERSECURITY OF THE HOUSE OF REPRESENTATIVES COMMITTEE ON HOMELAND SECURITY

JULY 13, 2005

"LEVERAGING TECHNOLOGY TO IMPROVE AVIATION SECURITY"

INTRODUCTION.

Good Afternoon, Chairman Lungren, Ranking Member Sanchez, and distinguished Members of the Subcommittee. My name is Cherif Rizkalla[1], and I am the President of Smiths Detection, Americas ("Smiths"), a Pine Brook, New Jersey-based company providing technologically advanced security solutions to detect and identify explosives, chemical and biological agents, weapons, and contraband. Employing trace detection technology together with Smiths-Heimann x-ray imaging, Smiths provides security solutions for customers in homeland security and defense markets worldwide. Here, in the United States, Smiths' technology helps protect many of the nations buildings and airports. In the National Capitol region, Smiths has been a long-term partner in securing Government facilities such as the one we are in. Smiths has also provided and continues to provide detection equipment to our troops in Iraq and Afghanistan.

It is a pleasure to testify before your Subcommittee today as you and your colleagues examine government and private industry efforts to leverage technology to improve transportation security in general, and aviation security specifically. The stakes are high and we have been challenged. We as a manufacturer have been challenged to continuously adapt to an ever-changing threat. We have been challenged to innovate and develop new products that are better adapted to the evolving needs of our customers. We have been challenged to relentlessly search for breakthrough technologies that will become tomorrow's solutions. Governments worldwide are also challenged, challenged to identify and deploy the products and technologies that best respond to their specific needs.

Smiths looks forward to continuing to work with this Committee, the Congress, the Transportation Security Administration, the Department of Homeland Security, and the Administration to meet the challenges that we all face in protecting aviation passengers and the commercial aviation system from physical threats. As the Committee is well-aware, the 9/11 Commission made several recommendations regarding passenger, baggage, and cargo screening to improve aviation security including recommending that "[t]he TSA and Congress give priority attention to improving the ability of screening checkpoints to detect explosives on passengers. As a start, each individual selected for special screening should be screened for explosives." While improvements have been made through recent legislation passed by Congress and signed into law, it is beyond dispute that more can be accomplished, including the immediate deployment of high-throughput portals that detect explosives on passengers.

As a preliminary matter, I will present a quick vignette of Smiths Detection, which is one of four operating divisions of Smiths Group, plc. We are principally engaged in the development of high-sensitivity analytical instruments that detect chemicals and other substances found in explosives. In October 2002, Smiths acquired Heimann Systems, the world's market leader in X-ray security systems whose products are primarily used in the transportation security arena to inspect luggage and freight. The acquisition of Heimann significantly expanded the capabilities of Smiths to conduct checkpoint and other types of screening in the transportation security markets. As a market leader, Smiths has successfully deployed its security solutions for the Department of Homeland Security, the United States Armed Forces, the Federal Bureau of Investigation, the Department of

[1] A brief biography of Cherif Rizkalla is attached as Appendix A.

State, and the Federal Protective Service as well as several foreign governments including Israel, France, the UK, Canada, Argentina, Hungary, Spain, U.A.E., Japan, Italy, and China.

I. HIGHLIGHTS OF SMITHS DETECTION'S IMPROVEMENTS TO PASSENGER CHECKPOINT SECURITY.

The Transportation Security Administration ("TSA") has the difficult task of deploying technologies that effectively provide adequate aviation security measures while not disrupting the flow of commerce, and must do so within budgetary constraints. Smiths has over the years, and continues to be, true partners with TSA as we work together to develop products that are both useful and efficient, and consistent with Congress and the TSA's stated goals.

Smiths is currently manufacturing dozens of security-oriented solutions that improve passenger screening; however, I will focus my remarks on three (3) particular product areas that I believe provide a good example of how Smiths not only develops security solution products for today's threats but is continuously looking out to the future needs of government's worldwide:

1. Smiths' IONSCAN technology and the Heinman X-Ray Security Systems, and their applications to efficient explosive detection efforts;

2. Smiths' efforts regarding the Sentinel II ("Sentinel II"), a trace detection walk through portal which is used to detect the presence of explosives on the bodies of passengers and which has been deployed at a handful of test airports in the United States, and is currently in operation at other security checkpoints throughout the world; and

3. Smiths' latest Millimeter Wave TADAR Camera innovation, which reflects the implementation of cutting edge technology to detect explosives through detection of differences in energy emitted by the human body.

1. The IONSCAN 400B.

Smiths Detection's original entrée into the world of passenger screening was with the IONSCAN[2] trace detection technology from the 1980s and 1990s which was developed in response to growing demands for technological solutions to narcotics problems. This technology has been deployed with numerous law enforcement agencies in the United States and throughout the world. More recently, the IONSCAN technology has been converted for the detection of explosives. The presence of trace explosives indicates that an explosives device may be present or that the person may have been handling explosive material in preparing a bomb and further investigation is necessary.

Trace detection works by sensing the presence of microscopic amounts of target substances on the exterior surface of a package containing an explosive such as a backpack or cardboard box. These traces are collected and analyzed in a matter of seconds to provide the screener with nearly instant notification that an explosive is present.

[2] A picture of the IONSCAN is included as Appendix B.

A simple wipe with a swab over items such as checked or carry-on luggage, portable electronic devices, and packages is all that is necessary to collect a sample which is then placed into the IONSCAN® for analysis. In 8 seconds the color-coded display presents results to the operator - red for a detection and green for the "all-clear". If a contraband substance is detected, the specific name is identified on the display. Leading aviation organizations, including the FAA/TSA in the United States, Transport Canada, and the BAA in the United Kingdom, have evaluated and approved the IONSCAN® for their aviation security needs. In fact, nearly every federal agency and every major airport throughout the world uses the IONSCAN 400B and its related products.[3]

2. The Sentinel II Contraband Detection Portal.

Another product of note is the Sentinel II[4], which was developed in collaboration with the FAA, TSA, and the Sandia National Laboratory in response to the general interest in providing a full body, non-intrusive explosive screening method for use on personnel at checkpoints in high traffic volume environments. The Sentinel II has proven to be an effective and efficient system that complements proven technologies with cutting-edge improvements to create an efficient and reliable detection system. The Sentinel II has withstood all TSA evaluations and tests and meets all applicable manufacturing specifications. Just this year, TSA began field-testing the Sentinel II at four major airports in the United States and additional deployments nationwide are expected.

Despite the complexity of the technology behind the device, it is fairly simple to describe and understand its operation. The passenger steps into the Sentinel II for a period of only seconds. There are no true doors that must open or shut, it's more like walking into and stopping in a conventional metal detector much like I walked through this morning when I entered this building. Once the passenger is in the Sentinel II, gentle puffs of air dislodge any particles trapped on the body, hair, clothing and shoes. These particles are then directed into the instrument for analysis. The passenger then continues through the security process. The time in the Sentinel II takes only seconds—IONSCAN® technology combined with pre-concentration technology developed by Sandia National Laboratories allows for the high throughput of screening up to 7 people per minute. Trace amounts of more than 40 substances are detected and identified in seconds. Results are displayed in an easy-to-understand fashion.

I highlight the Sentinel II not only because it uses a proven effective technology for contraband detection but also because of the collaborative effort between Smiths and the FAA/TSA to implement the use of the Sentinel II. In my opinion, this effort reflects the proper function of TSA in turning to the private sector to solve a public problem.[5] As I mentioned above, I believe that transportation security in general and aviation security in particular could be greatly enhanced by immediately increasing the presence of the Sentinel II at airport passenger checkpoints throughout the United States.

---

[3] Recently, TSA used the IONSCAN 400B in its Transit and Rail Inspection Pilot by implementing the product at the New Carrollton, Maryland train station.

[4] A picture of the Sentinel II is attached as Appendix C.

[5] It is worth noting, however, that this collaborative effort took nearly ten years from its inception to deployment.

3. The TADAR Camera.

Smiths is currently working on several new cutting-edge technologies for checkpoints and other types of screening, but I would like to highlight one innovative product that we feel is of particular interest to the Subcommittee: the TADAR Camera[6]. The TADAR is a passive system designed to detect contraband by measuring millimeter wave energy. Its sensors detect differences in the energy naturally emitted or reflected by objects at a 3-millimeter wavelength. This nonionizing energy can penetrate clothing and many other concealing materials. An explosive strapped to the human body, for example, returns a different amount of energy to the TADAR than the body around it, therefore revealing the explosive. At the same time, the TADAR is unaffected by the presence of clothing because clothing is transparent at millimeter wave frequencies.

Again, the technology is complicated, but the function is simple: A passenger would stand before the TADAR camera which would measure his body's natural radiation of energy in comparison to a controlled background. If the passenger is carrying an explosive or a weapon, these objects will stand out on the TADAR image so that the screener can identify them. The image is processed to provide the passenger with privacy while still facilitating threat detection.

The TADAR features several benefits that place it at the vanguard of explosive detection systems:

- Passive Operation—TADAR uses natural, nonionizing millimeter wave energy to sense threat objects, which result in high quality images with no risk to the passenger.

- High Quality Images—TADAR scanning mechanism produces high quality, real time images that can be further sharpened using proprietary 'super-resolution' software algorithms.

- Simple Mechanics—TADAR employs a very novel and simple mechanical design that permits a passenger to be scanned very quickly and reliably.

- Lowest Cost Solution—TADAR's simple and efficient electronics and mechanical design makes it the lowest-cost solution available.

The TADAR employs cutting-edge technology that has matured to the point where the TSA and Smiths can once again begin a collaborative effort to implement this technology at various test airport passenger checkpoints throughout the United States. Smiths recommends using the template from the successful collaborative effort between TSA and Smiths to develop the Sentinel II as a guide. In addition, Smiths would welcome the opportunity to continue research and development efforts of the TADAR or its offspring so that passenger screening technologies can continue to improve as threats to passengers become more sophisticated.

[6] A picture of the TADAR Camera is attached as Appendix D.

II. HIGHLIGHTS OF SMITHS' DETECTION TECHNOLOGIES FOR BAGGAGE SCREENING.

In addition to Smiths' improvements to worldwide passenger checkpoint security, I would also like to briefly bring to the Subcommittee's attention the baggage screening solutions that we often provide in concert with our passenger screening technologies at security checkpoints. As with passenger screening, Smiths is producing dozens of baggage screening technologies, but in the interest of time, I will highlight two (2):[7]

1. Smiths-Heimann X-Ray Systems.

Smiths produces various x-ray driven technologies that provide useful cargo and baggage screening applications at security checkpoints. In fact, my briefcase was run through a Smiths-Heimann x-ray system this morning when I walked into this building, just as it's done for nearly every visitor to the Capitol. These systems come in a variety of sizes that permit the technology to be used in any transportation setting, in any airport security area, regardless of size. The HI-SCAN 5180i[8], for example, is a newly designed X-ray inspection system for screening objects up to a maximum size of 20 inches wide, by 31 inches high. The system is perfectly suited to the inspection of check-in baggage in civil aviation, which is why so many airports worldwide have implemented such systems at security checkpoints. The compact dimensions, the low conveyor belt and the system technology ready for network operation make the HI-SCAN 5180i an outstanding basic system for integrated check-in counter systems featuring central image analysis.

2. The Explosive Detection Tomography System.

The Explosive Detection Tomography System[9] ("EDTS") is another product that is commonly used to improve aviation security. EDTS is a multi-view tomography system capable of screening up to 1,800 checked bags per hour. The EDTS employs multidimensional image evaluation to detect blasting agents, including industrial and military plastic explosives and utilizes sophisticated multiplexing techniques for image queuing and alarm resolution. The EDTS can accommodate passenger baggage of up to 42 inches wide and 32 inches high, reducing the need for manual inspection of oversized bags.

EDTS technology is in use in airports throughout the world, except in the United States. However, EDTS has recently been judged a success in the United States following a successful pilot program at Washington's Union Rail Station where TSA utilized Smiths' EDTS technology to screen rail passenger baggage.

---

[7] Smiths is currently working with TSA regarding the "NexGen" Checked Luggage Screening program, named Manhattan II. In its second phase, Smiths is combining state of the art and emerging technologies to create a system to meet the goals of very high detection rates, very low false positive rates, and sufficient throughput to meet the demands of the traveling public.

[8] A picture of the HI-SCAN 5180i is attached as Appendix E.

[9] A picture of the EDTS is attached as Appendix F.

III. CONCLUSION.

Mr. Chairman, Smiths Detection offers several proven and new-wave technologies that greatly assist the TSA and Department of Homeland Security in achieving its stated goal of improved aviation security. Our technologies provide reliable and cost-effective means to detect the presence of explosives on passengers, in luggage, and in cargo. Tests of Smiths Detection's technologies have established that they improve passenger safety without disrupting passenger flow and we are continually working to ensure that passenger flow is as efficient as possible while maintaining an effective checkpoint process. Smiths Detection appreciates the opportunity to testify before the Committee and looks forward to working with the Committee members in continuing to implement its technologies.

APPENDICES TO TESTIMONY OF CHERIF RIZKALLA

JULY 13, 2005

APPENDIX A

Biography of Cherif Rizkalla

CHERIF RIZKALLA
President, Smiths Detection, Americas

U.S. business address: 30 Hook Mountain Road, Pine Brook, NJ 07058 USA
Canadian business address: 950 Bergar Laval Quebec H7L 5A1 Canada

U.S. telephone: 973-830-2100

Canada telephone: 450-967-0010

Executive Assistant: Ms. Guylaine Belzil

Email: cherif.rizkalla@smithsdetection.com

Biography

After achieving advanced degrees in Pure Sciences and Electrical Engineering at the Ecole Polytechnique de Montréal, Mr. Rizkalla's career has spanned over 20 years in the high technology security industry. In 1995 Mr. Rizkalla was appointed President for Heimann Systems, a division of Germany's Rheinmetall, for the North American market. After the Smiths Group acquired Heimann Systems in 2002, Mr. Rizkalla was appointed President, Civil Business North America for the Smiths Detection division. In February 2005, Mr. Rizkalla was appointed President, Smiths Detection, Americas and charged with sales, marketing, product development, manufacturing, R&D and finance for over $100M and over 400 employees in six offices in the U.S. and Canada.

APPENDIX B
The IONSCAN 400B

APPENDIX C

The Sentinel II Trace Detection Portal

APPENDIX D

The TADAR Camera

APPENDIX E

The HI-SCAN 5180i

APPENDIX F

The EDTS